

Las Positas College  
ANNUAL PROGRAM REVIEW TEMPLATE  
Review of AY 2011-12

Name of Program	Division	Author(s)
Welding Technology	STEMPS	Scott A Miner

**INSTRUCTIONS:**

1. This Annual Program Review covers the time frame academic year 2011-2012.
2. The planning should be for the academic year 2014-2015.
3. Use the Save As feature in Word to save this template with your program name, so that you do not overwrite the original template (e.g., Bio, math, EOPS)
4. In each section, click in the box under the instructions and fill in your information. The box will expand as you type. If a section is not pertinent to your program enter N/A in the box; do not leave it blank.
5. To see how other programs completed sections in the Annual Program Review, visit the Examples Template on the PR website. The examples are from a variety of programs and may give you ideas of how to respond for your own program.
6. When you have completed the form, run the spell-checker (**click inside the text in the first box**, then click on the Review tab and find Spell-Check in the far left corner of the ribbon).
7. Please address your questions to your Program Review Committee representatives or the PR co-chairs Jill Carbone and Teri Henson. Concerns, feedback and suggestions are welcome at anytime to PRC representatives or co-chairs.
8. Instructions for submitting your Annual Program Review will be available at the start of the fall semester.

**STATEMENT OF PURPOSE:**

- Review and reflect on the student experience, with the goals of assessing and improving
  - student learning and achievement
  - services for students
  - program effectiveness.
- Provide a forum for each program's findings to be communicated to Administration
- Create written records of what is working well, what can be improved, and specific plans for implementing chosen improvements.
- Collect information that will contribute to institutional assessment and improvement.

**I. MISSION**

State the current program mission

*(A mission statement should address the unique role and scope of the program. Consider the operating mission of your program. Identify specific purposes within your program (e.g., certificates, degrees, general education, matriculation, assessment). Avoid vague, overbroad language.)*

LPC WELDING TECHNOLOGY MISSION:

*Be the Best Community College Welding Program in California.*

The Mission of the welding technology program includes training students for careers in industries that utilize welding as a means of manufacturing and repairing products, and to provide transferable coursework for those students who may wish to pursue advanced education. Our mission also includes becoming the college of choice in our region for students pursuing training and education in welding. Materials are the limiting factors in many advanced technology areas, joining these materials is the job of the welder, welding technician, materials engineer, materials scientist, and welding engineer. Producing students interested in transfer to schools pursuing these advanced subjects is a key part of our mission as well. Welding meets the transfer, degree, career-technical, and retraining goals specifically called out in the college mission.

- Degree: AS – Welding Technology
- Certificate of Achievement: Welding Technology

**The mission of Las Positas College is:**

*Las Positas College is an inclusive, student-centered institution providing learning opportunities and support for completion of transfer, degree, basic skills, career-technical, and retraining goals.*

**(NOTE:** this is the draft mission statement, currently under review.)

Discuss how the program supports the college mission.

The welding technology program directly supports the following components of the college mission:

Meets the academic needs of students pursuing welding and more advanced degrees, as well as students interested in completing General Education work

Challenges students intellect by exploring the technical aspects of welding and discovering there is more to it than just a bright light

Prepares students for career entry and advancement as well as retraining of displaced workers  
Provides a venue to explore creativity and express that through art, while meeting the academic requirements of General Education coursework

Prepares students to meet their personal development goals for career entry and advancement as well as retraining for a career change

Provides the students with a good work ethic and understanding of what is expected in society and the workplace

Partners with the local business and organizations to promote the welfare of its students and economic health of the Tri-Valley area, our State and our Nation

Cultivates in students the willingness to adapt to change in the workplace

Cultivates students to be engaged, responsible and productive contributing members of our community

Cultivates in students the concept of lifelong learning and continuous improvement in everything they do

Excellence in welding, being the best at what we do, is our focal point of everything that we do. Welding demands perfection, we must strive for the best from within, using all the available resources and assets at our disposal. We continue to serve a diverse population both from the students that are following a career pathway intended to finally secure employment in the welding field, to the artist with a grand imagination, to the hobbyist with a hot rod and ambitions to go the speed of sound, to the person that is considering alternate forms of energy that need skills and knowledge to make their dreams become reality, to the person that's just exploring welding and trying to find themselves because they have not felt excepted elsewhere in life and they think there is some spark of hope here. We adapt as needed our teaching style and equipment needs to meet the needs of a diverse range of disabilities or learning difficulties. Welding serves all these needs and countless more. For some, welding is a doorway to another world never imagined, an unknown path to the area of materials engineering, materials science, welding engineering or other engineering, science or advanced technology degrees in other areas .

Welding meets the transfer, degree, career-technical, and retraining goals specifically called out in the college mission.

- Degree: AS – Welding Technology
- Certificate of Achievement: Welding Technology

## II. PROGRAM ANALYSIS

### A. Courses (For Instructional Programs Only)

1. Will any course outlines be revised or updated in the academic year 2014-2015?

*(Highlight the appropriate box to type in an X.)*

YES  NO

**If yes**, in the table below, please list which courses will be revised or updated and the reason for the revision.

*(Click in the box under Courses to start entering information. Tab to move to the next box. Tab in the last box to create a new row.)*

Course(s)	Reason for Revision
<b>WLDT 61A</b> <b>WLDT 61AL</b> <b>WLDT 61B</b> <b>WLDT 61BL</b> <b>WLDT 62A</b> <b>WLDT 62AL</b> <b>WLDT 62B</b> <b>WLDT 62BL</b> <b>WLDT 63</b> <b>WLDT 66</b> <b>WLDT 67A</b> <b>WLDT 67B</b> <b>WLDT 68</b> <b>WLDT 69A</b> <b>WLDT 69B</b> <b>WLDT 70</b> <b>WLDT 71</b> <b>WLDT 75</b> <b>WLDT 79</b> <b>WLDT 80</b>	Need to update on an ongoing basis, time to do so, has been a few years since last renewed
Click here to enter text.	Click here to enter text.

2. Will new curriculum (*e.g.*, course outlines, degrees) be submitted to the Curriculum Committee for the academic year 2014-2015?

YES  NO

**If yes**, please describe briefly what new curriculum is planned.

The degree and certificates contain courses from other programs that have changed or been discontinued. The degree and certificate pathways need renewed. Perhaps, contingent upon a number of factors. Lasers are becoming an increasing player in the field of welding. Sometime in the near future the needs of Tri-Valley and regional employers for employees with these skills may be necessary. Partnerships must be fostered and developed.

**B. New Initiatives (AY 2014-15)**

Are any new initiatives planned for the academic year 2014-15?

*(Examples of new initiatives include, but are not limited to: new degrees or certificates, new pathways, new outreach efforts.)*

YES  NO

**If yes**, please describe briefly what new initiatives are planned.

Revising Welding Degree and Certificate requirements and courses to more closely align with the WELD-ED National set of Student Learning Outcomes.

Continued roll-out and FULL implementation of the SENSE Welding Program for industry recognized Entry Level Certificates issued by the American Welding Society (AWS)

Becoming an American Welding Society Accredited Testing Facility (ATF) to increase internal department fund raising opportunities. Supports interaction with local industries and community partnerships.

Formation of a SkillsUSA chapter so that students can compete in regional, state and national welding skills competitions.

Virtual reality welding training equipment. Studies have shown students that train on this type of equipment prior to the actual real welding equipment, learn quicker and use less resources than traditional methods of welding skills training.

Distance Education courses for the current 61A, 61B, 62A and 62B face-to-face lecture series classes.

Increase utilization of the interior space within the welding outdoor yard. Transition from storage to usage.

Create partnerships with local companies that support welding education and employment pathways

Strengthen our connections to welding programs at local high schools in our region

“Evening with Industry” event to connect advisory board members with students enrolled with the welding program looking for employment and educational direction

Get LENS laser welder operational, and pursue laser welding in general.

Advanced Manufacturing Lab Space

**C. SLOs/SAOs**

## 1. Status of course SLOs/SAOs and assessments for AY 2011-12.

*(Since the Program Review process is beginning in 2013 and the assessments for AY 2012-13 will not be complete, analyze the assessments for the AY 2011-12). Click in the box under Number of Courses Offered. Press Tab to move to the next box. Press Tab at the end of the row to create a new row.*

Number of Courses Offered (AY 2011-12)	Number of Courses with SLOs (AY 2011-12)	Number of Courses Assessed within the last TWO years (AY 2010-11, AY 2011-12)
16	16	16

## 2. How frequently have course SLOs/SAOs been assessed? (e.g: every semester, every other semester, once a year.)

*(This is a summary; it is not a list of courses and their assessment frequency.) Click in the box and begin typing. The box will expand as you type.*

The goal of the welding program is to assess students each semester. This goal is easy to attain, because each one of the SLO's are something that is part of the course. Safety is of paramount importance in any industrial workplace. A professional attitude must be instilled into every student that enters the lab, for their own safety, the safety of others and safety of the college assets. Safety is a SLO of every welding lab class we teach. Passing an industry recognized American Welding Society (AWS) Certification test plate or pipe is also a SLO in our welding courses. These are industry recognized transferrable/stackable credentials. Safety and passing a practical welding assessment are musts if one is to enter the field of welding and be successful at it. As such, they are the cornerstone of our SLO efforts.

The assessments are made with a Safety Test based on ANSI Z49.1, *Safety in Welding and Cutting*, at the outset of each semester, in each lab class. The course is completed with a destructive test of the students weld(s) using AWS Code D1.1 industry standard acceptance criteria. The testing and assessments are administered by the department coordinator who is an AWS Certified Welding Inspector/Certified Welding Educator (CWI/CWE)

The redundant clerical efforts to enter the data into the elumen system in a one person department may not reflect the frequency the assessments actually occur in the course of instruction.

## 3. Status of program-level SLOs/SAOs and assessments for AY 2011-12.

Number of degrees/certificates offered	Number of degrees/certificates with SLOs	Number of program level SLOs/SAOs
2	2	2

## 4. Analysis of SLO/SAO data for AY 2011-12.

*(Attach a summary of the program's AY 2011-12 SLO/SAO data as an appendix.)*

- a. Please describe the program-wide dialogue on assessment results, including assessment of distance education courses. Where would one find evidence of this dialogue?

*(This section concerns the type and variety of dialog regarding assessment results, not the assessment results themselves. For examples of evidence, consider: meeting notes, program coordinator's records of dialogue, or email.) For each of these questions, click in the following box and begin typing. The box will expand as you type.*

The welding instructors (3) meet off campus, before the start of the semester, to discuss student success from the past semester, what worked, what did not work and areas of improvement and refinement for the coming semester and academic year. Examples of improvements developed during these discussions include: student material usage, instructional assistant schedule, student weld testing procedure improvements, student safety and operational improvements, course material content, student pass/fail stats, industry initiatives with respect to SLO's, campus SLO assessments, and the need for continuous improvement. Documentation of these meetings/discussions needs to improve.

Discussions between educators and industry representatives on current trends in industry and ways for students to succeed in the current welding employment marketplace occur frequently. These primarily occur when the instructor ventures off campus to meet with industry reps at their respective business or shop location. More of these need to occur at future advisory board meetings so that these may be better documented. The frequency of these meetings needs to occur annually.

The BACCC has recently formed a Regional Welding Advisory group that appears to be headed in the direction of two meetings each year. At the most recent meeting in October, more than 65 people attended from 9 regional CC welding programs, and numerous groups from welding industry, suppliers and labor organizations. The core curriculum, student learning outcomes, and pathways to employment are the focus of this group.

On a larger scale, the full time welding department coordinator/instructor attends the national welding educator seminar to help connect the dots and understand assessment trends across a state, regional and national scale. The instructor has participated in the process of developing the WELD-ED national set of welding SLO's

- b. Please summarize what was learned from the assessments, including distance education courses. How will these results be used for improvement/s?

*(Please provide at least two paragraphs. One paragraph should address face-to-face assessments, the other paragraph should address distance education assessments. If the course is taught in both face-to-face and distance education modes include a paragraph comparing the assessment results.)*

In general, we are on the right track and need to, in general, continue what we are doing, with tuning where needed, to improve student learning.

The assessments show that our emphasis on safety is working to keep students safe when operating equipment that has potential hazards. We will continue to focus on this area, safety is job one in any industrial workplace. The use of the AWS/ANSI Z49.1 safety standard is the correct path to follow and we will stay on that with continued and ongoing assessments. We can only stay on this path with continued support of the Lab Technician

that was hired to focus on Welding and Auto. Extensive new viticulture duties and responsibilities, since moving from BCATSS to STEMPS divisions, the have drawn away Technician time formerly devoted to weld lab upkeep and safety. This will impact the weld lab over time, as weld lab safety and equipment stewardship is compromised.

One area of improvement is the increase in students that pass industry standard certification tests. There are a number of reasons for this. First, as student has to have the physical skills needed to pass the test. These skills are learned with time, persistence and determination. Of these four attributes, the student is responsible for three fourths of these. The instructor and college provide the time (place, instruction and equipment) for the student to achieve the outcomes. . Student welding time could be increased if we had the ability to increase the availability of prepared certification plates, or decrease the amount of time it takes to prepare the plate itself. If the student does not have the persistence, determination, or hand-eye physical coordination developed over time, the SLO cannot be achieved. The instructor must create an environment and scenario where the student's determination and persistence are encouraged and fostered through the vision of what is possible, with their skills and knowledge, after school is over and their degree or certificate is in the rear view mirror of their life. If the student does not see the vision, or believe in it, all the time in the world by instructor or institution will not help the student pass an industry standard welding certification test. Increasing field trips to industry locations and events are a critical part of increasing and solidifying the vision a student has of their future in this trade. Hearing from industry reps repeat and confirm the vision the instructor is trying to paint in the classroom is priceless.

According to the WELD-ED national SLO document:

"Hence, personal effectiveness, academic and workplace competence are all foundations that need to be imbedded into the curriculum through academic requirements of individual institutions and through instructional strategies. These student learning outcomes are vital if the graduate is to be a successful welding technician."

One planned task will have the greatest impact on SLO's will be the revision of course and degree requirements to align with the WELD-ED National set of Student Learning Outcomes. (attached) What we currently offer, has many of the elements listed in the national set of SLO's. The revisions will better align/tune-up our coursework with a national set of standards fed to welding schools from the welding industry itself.

We feel unique and privileged in Welding Technology to be connected to an industry that has enough foresight and vision to create a national set of student learning outcomes to address future employment and skills gaps in our industry. The welding industry should be held up as example of how industry and education can comingle and deliver a set of standardized SLO's for the good of educators, students and industry. No other program on campus has any SLO document like ours that defines 200+ outcomes a welding student should possess to be successful in the trade. At no point does the department plan to

enter that many data points into the elumen system.

- c. To what extent will, and how, do assessment results support resource requests for AY 2014-15?

Most of our requests in welding revolve around three general topics. Keeping the lab in an up-to-date safe learning environment. Tools, equipment and technology needed to help students becoming proficient at passing industry recognized skills and knowledge tests. Tools, equipment and technology that are extensions of the student's hands to perform work in an industrial environment and support ongoing welding shop operations.

- d. What are the general plans for assessments in the upcoming academic year AY 2014-15 (*i.e.* additional assessments or reassessment)?

Continue to assess Safety and the ability to pass nationally recognized practical welding certification tests. Expand and refine our approach through the use of the WELD-ED national set of core SLO's.

#### D. Student Data

1. Analyze the student data provided by the Office of Institutional Research (<http://www.laspositascollege.edu/researchandplanning/ProgramReview.php>) and other data as appropriate (for example: SARS-TRAK data, library student surveys).

- a. Please describe the program's dialogue about the student data. Where would one find evidence of this dialogue?

*(This dialog should be occurring as you write your Program Review of 2011-2012. Examples of evidence may include: agenda or minutes from workshops or meetings, internal reports. Smaller programs may want to consider discussing their data with related programs, their Dean, the Institutional Researcher or, for academic programs, adjunct faculty in the program.) For each of these questions, click in the following box and begin typing. The box will expand as you type.*

During the data period provided, the head counts and enrollments peaked in 2008 at 128 and 215 respectively. With respect to 2011-2012, the headcount had decreased to 109 and the enrollment we near parity of 211. These means that the trend is for fewer students taking only one course. This could show increased commitment on the part of students, as well as efforts to engage students are showing success.

With respect to demographics and gender, 94% of the students in the program are male. The 6 female students in the study period, is the lowest level in the data pack. This shows the impact the loss of the WLDT 71 course has had on female enrollments. The addition of this course in the Spring 2014 schedule will have big effects at reversing this number. Women are identified as an important part in filling the future skills gap in our industry. Based on the data, the median age of a typical welding is between 20-25. We have a wide range of age types. Welding has two students 19 or younger for every student age 50+. The younger people tend to take day course offerings, and more than one section. The older students tend to take one course per semester and will take those classes in the evening or weekend. With respect to ethnicity, the majority of the students are white,

followed by latino and multiethnic students in the ratio of 11:2:1 respectively. The ethnicity of the student body reflects the varied campus community. Asian and African American students still are ones we do not see in large numbers, the reasons we are not sure. With respect to enrollment status, a quarter of the students are first time college types with almost three quarters of the students listed as continuing. The balance are returning or or first time transfer. This is a good stable mix in our department as it provides about 75% of the students returning each semester and 25% new entering the department. With respect to student load, about 23% are fulltime, 33% part-time, and 53% are part-time with less than 6 units. The educational goals of the students are 28% transfer and 28% occupational certificate. Proof that we serve multiple facets of the college mission in the area of transfer and career technical education. 15% of the students are looking for an AS degree only. With respect to highest educational level, 81% list themselves as freshman or sophomores, with less than 10% having a BS/BA or higher. We feel we are serving the community intended for the community college. The course success and completion rates approach 90% owing to an engaging lab experience, genuine student interest in the subject matter, and a sense of financial gain with the skills acquired.

The welding instructors (3) meet off campus each semester, before the start of the semester, to discuss student success from the past semester, what worked, what did not work and areas of improvement and refinement for the coming semester and academic year.

Discussions between educators and industry representatives on current trends in industry and ways for students to succeed in the current welding employment marketplace. More of these need to occur at future advisory board meetings. The frequency of these meetings need to occur.

On a larger scale, the full time welding department coordinator/instructor attends the national welding educator seminar to help connect the dots and understand assessment trends across a state, regional and national scale.

- b. Please summarize what the program learned from the student data. How will these results be used for improvement/s and planning?

*(Briefly discuss trends or significant findings regarding student retention, success rates, different cohorts of students, etc. Student data may suggest the need for changes in course offerings, scheduling, teaching methodology, outreach, processes, etc., or may lead to the creation of a new SLO/SAO.)*

Students that enter the welding program have a high degree of success. Students have consistently exceeded 80% course success rate. This can be attributed to the individual attention each student gets in the courses, as well as the collective drive of students to succeed in a course that they see connected to their future well-being. Welding is a field where each individual either sinks, or swims, there is no in between. The student is able to perform work that meets industry standards, or they cannot. When a student cannot perform the required tasks, they generally withdraw from the course. Welding is not for everyone, and

not everyone can do welding. This harsh reality of real world employment needs is reflected in our student learning outcomes. All outcomes are either pass or fail. A truly successful student embraces the technical and physical challenges that welding presents and finds their own path through the welding forest using the instructor as a mentor and a guide and their heart as the compass. The student must assimilate significant amounts of technical material, combined with physical dexterity, as well as daunting environmental and material issues to become successful.

Course retention is also high, closely aligned with course success rates. During the study period retention averaged around 90%. Welding is an interesting subject, nearly everyone wants to at least try it, it is a mystery to many. Once most students give it a try, within a matter of minutes, they quickly determine on their own if they like it or not. The retention rates show most students learn to love their welding classes and feel bonded to others as part of some larger team. The instructors go to great lengths to make students feel at home in the lab, and that they leave the classroom feeling like they accomplished something. One of our benchmarks for success is when a students make statements like “this is the best class I have ever taken at LPC” something seen frequently on instructor evaluation forms for welding classes. Furthermore, when students take their skills and enter the work world and gain meaningful employment, that is the ultimate benchmark for success. Having coursework that is enjoyable, meaningful, useful and challenging is the root of student success in welding technology.

In the area of certificates and degrees, our numbers are low as compared to the college as a whole. There are a number of factors that attribute to that. One is the challenging nature of the work. The culminating 69 series pipe welding courses are not easy. It is not a skill that is honed overnight. Some students see this as a blockage to their graduation, the department looks at it as a success milestone in the life of the student. Another problem has been until recently, we did not offer the final series of classes to complete the degree on a regular basis. That has been addressed and the rates of completion over time should rise. Another issue was the fact that a couple of the courses in other disciplines needed for the degree were discontinued by the college. This requires a rewrite and realignment of the degree and certificate path. Still others struggle with the math requirements necessary to graduate. Finally, we are a victim of our own success, our courses frequently run at above 100% capacity, thus getting a seat in the course a coveted spot. When students are not diligent to sign-up for class, they often find themselves left out in a course they need to graduate. When a student has to skip a semester because they cannot get the class they wanted, sometimes they return after sitting out a semester, others never reappear. We currently cannot accommodate every student that wants to take welding. Turning away enthusiastic aspiring minds interested in our field of study from impacted courses is the worst part of this full-time instructor’s job, and the toughest task to do.

- c. To what extent, and how, do the student data results support resource requests?

*(If relevant, briefly explain how your student data may be improved by acquiring new or additional resources (eg: faculty, classified personnel, instructional equipment, facilities) that you plan to request. You will be asked to provide more detailed information on the resource request forms; this is just a brief summary.)*

Most of our requests in welding revolve around three general topics. Keeping the lab in an up-to-date safe learning environment. Tools, equipment and technology needed to help students becoming proficient at passing industry recognized skills and knowledge tests. Tools, equipment and technology that are extensions of the student's hands to perform work in an industrial environment and support ongoing welding shop operations.

The data shows an ongoing trend of good results based past request for equipment and supplies. With that trend in mind, our near term requests will follow the same general scope.

## 2. Enrollment Management **(Instructional programs only)**

- a. What total FTEF was approved for the program in 2012-13? This data is found in your Discipline Plans.

4.18 FTEF

- b. If this amount differs from 2011-12, describe what changes have occurred.

*(To find Total FTEF for AY 2011-2012 consult the Enrollment Management data on the IR website. (<http://www.laspositascollege.edu/researchandplanning/ProgramReview.php>). If your allocation was less than the previous year, comment on the types of courses that were cut. If the allocation was more, indicate which classes were added and why.)*

4.31 FTEF

We modified the mix of courses that led to an overall reduction of FTEF from AY2011-12 to AY2012-2013

- c. Describe and explain any changes you anticipate in course offerings for the academic year 2014-15.

We do not plan any grand additions or deletions in the near term. We may modify the mix of classes offered in the near term, but plan to stay within defined FETF limits.

## E. Human Resources **(in AY 2011-12)**

1. Please complete the following table.

(Enrollment Management data is posted on the IR website:

<http://www.laspositascollege.edu/researchandplanning/ProgramReview.php>).

Total FTEF*	FTEF from Full-Time Faculty*	% FTEF from Full-Time Faculty **
INFO NOT AVAILABLE (4.18 estimate)	INFO NOT AVAILABLE (2.0 estimate)	INFO NOT AVAILABLE (50% estimate)

\* If your program consists of multiple rubrics (eg: Anatomy, Ecology, Microbiology) sum values from all rubrics

\*\* If your program consists of multiple rubrics, use the following equation to calculate the % FTEF from Full-Time Faculty: Divide the FTEF from Full-Time Faculty by the Total FTEF and multiply by 100.

Type of Personnel	Number	Shared? With whom? If shared, state % of time assigned to the program	No. of hrs/wk	No. of mo/yr
Lab Technician IV (James Weston)	1	Yes, Auto, Horticulture 30% assigned to Welding	40	12
Lab Technician II (Neil Carey)	1	Yes, Auto 50% assigned to Welding	24	10
regular hourly classified staff**	Click here to enter text.	Click here to enter text.	Click here to enter text.	Click here to enter text.
student assistants	1	Auto and Welding 50/50	8	9

\* full-time: 20 hrs/wk (50%) to 40 hrs/wk (100%)

\*\* regular hourly: 18 or fewer hrs/wk (45% or less)

2. Will human resources be adequate for the academic year 2014-15?

YES  NO

**If No**, briefly describe. Provide any data which support these needs.

The work of the Technician IV is not to be questioned. He does outstanding work on whatever he does. Most of the time he goes above and beyond the call of duty to complete the tasks he is asked to do. The problem has to do with, what he is being asked to do, and what he feels he must do. Administrative support is needed to redefine the role he was originally hired to do, support Welding & Automotive with the focus to be on safety and lab asset stewardship.

During the last program review cycle, it was identified that safety and maintenance of the lab and shop equipment are a top priority for our department. Furthermore, it was

discussed that the hiring of a replacement for the Lab Technician IV, that retired, was critical for the long-term safety and proper college asset stewardship. Since the last program review cycle, welding and automotive, led by then Dean Dr Janice Noble, went through an extensive screening and interviewing process. It was noted that the welding skills side of the hiring equation was more challenging, than finding someone with auto experience. The questions and hiring criteria was specially focused on welding and auto. For example, the ratio of points given applicants during screening with respect to subject matter was: Welding 20points, Auto 20points, Horticulture 5 points. The auto and welding departments believe we selected the best person for the job, and that person was hired, and came on board. Once on board, the new hire worked extensively to clean, organize and repair the equipment in welding and auto labs, our dream of finding someone to help maintain the welding lab had finally arrived. All was well for the first year or more. Starting sometime last academic year, our lab technician's job assignments took a dramatic turn. The technician now started to take on extensive tasks in the Viticulture and Enology departments. The amount of time, the volume of assignments and complexity of the tasks assigned in that area grew exponentially, while welding and auto tasks remained stable. This area was not part of the technician's scope of duties in the hiring process, there was no mention of Viticulture and Enology. The amount and frequency of the tasks has become disruptive to the welding lab and class activities. The actual lab technician job duties as stated in district classifications and agreed by SEIU don't contain any reference to the VWT department or rubric.

At the start of last Academic Year, after grand discussions, new Divisions were formed. The welding and auto departments now came under the Dean that also managed the Viticulture and Enology programs. This seemed to further complicate the tasks assigned to the Technician This past summer, it appears, a good portion of his efforts this summer was spent on Viticulture and Enology tasks. The primary concern is over the lack of time left to attend what were to be his original scope of duties and tasks. In the best interest of the welding and auto programs, the Technician IV must return to the welding and auto tasks they were hired to perform. There has never been a discussion if our resources can be dispatched out to another group other than auto. The viticulture program has grown over time as stated in their program review. It has added new lab in the 1800 building, a fermentation lab in 800, has acquired extensive amounts of technical mechanical equipment, gas and diesel powered moving equipment and riding vehicles. The welding department has not grown one square inch or added two labs since the technician was hired to support auto and welding. Welding has not added any gas or diesel powered riding equipment to its inventory since the technician was hired and we have not implemented a seasonal "crush rush" for the technician. The increase in activity in this area has been at a loss of efforts in welding and automotive. Both programs have experienced diminished capacity in the efforts of the technician. Both programs have witnessed the extensive extra duties the technician has attempted to do. Our concern is over the long term safety and longevity of the technician himself. He cannot maintain the additional load indefinitely without increasing safety concerns. Our concern is also that the technician may choose to pursue employment elsewhere, rather than try to juggle three

balls when he was hired to juggle two.

It is imperative for the long term success of the welding and auto programs that the Technician IV position and tasks be restricted to the Welding and Auto departments only. The viticulture program has matured to the stage they need to state the need for classified support, apply for it through the normal channels, screen and hire the person that fits their needs, not continue to diminish capacity of the existing technician in welding and auto. Administrative support in this area is required for this to succeed and provide substantive change to tasks assigned the Technician IV.

3. Are there Staff Development needs for the academic year 2014-15?

YES  NO

**If yes**, elaborate. Provide any data which support these needs.

WELD-ED is a NSF funded welding professional development program. They offer each summer, moderately priced professional development opportunities in welding focused on six different areas of welding education and knowledge. While the faculty are off at that time, and able to attend, our Technician IV is not. It is important that we get more training for the technician. It is suggested that the college support release of time and funding to support the technician for a week long professional development workshop, one per year for a minimum of the next three years. Any additional skills and knowledge the technician gains at an event like this breeds positive results for the lab and the program many times over the cost to attend. This is a wise investment of the college's resources, to preserve and maintain the assets in the welding lab.

The welding instructor should attend the American Welding Society / WELD-ED national Welding Instructor Seminar held annually in conjunction with FabTech, North America's Welding and Manufacturing Equipment Expo. This is the only gathering of all the welding instructors in the country, in an effort to cross pollinate and share ideas, curriculum, and best practices in welding education. There is nothing else like this and is important to have this interaction annually. Many welding programs across the county are one person departments, and creates a venue where similar issues are discussed and explored.

The welding instructor should continue to attend the annual AWS/WELD-ED national welding educator seminar. It is the best place for the instructor to meet his peers in industry as well as pick up best practices from other institutions.

## F. Technological Resources

Are there any **new** technological needs for the academic year 2014-15?

*(Do not discuss your existing technology, including replacements and repairs of existing technology. DO discuss new needs.)*

YES  NO

**If yes**, briefly describe. Provide any data which support these needs.

*(Examples of relevant data might include: enrollment information related to the growth of your program, workforce demands/trends, obsolete or outdated equipment and/or software.)*

Virtual reality welding training equipment, see Iowa State Research study attached  
Upgrade existing welding equipment as technology needs change or equipment loses relevance.

### G. Facilities, Equipment, and Supplies Resources

Are there any new facility, equipment or supply needs for the academic year 2014-15?  
*(In this section consider new facilities, equipment and/or supplies that are needed to support your program. This does not include your current items that need replacement. Definitions of these terms may be found in the glossary.)*

YES **XX**      NO

**If yes**, briefly describe. Provide any data which support these needs.

*(Examples of relevant data might include: data on program's growth, change in curriculum, ADA regulations, etc.)*

We still desire a weatherproof cover over our welding yard so that we can make this an all-weather area for welding education rather than storage space as it currently functions. It has been listed in our program review since 2007. This seems like an item Measure B was intended to support.

The footprint of the welding program has not grown since the program's inception in 1980. Our enrollments and sections have grown significantly, while the lab has maintained the same footprint.

We would like to gain access to the old Theater Shop room in Building 800 to create an Advanced Manufacturing Lab space that could be used for partnering with outside companies and provide advanced learning activities to welding and engineering students. The LENS laser welding system transferred from Sandia National Labs is an example of advanced manufacturing equipment that might occupy that space.

### H. Financial Resources

1. Is there a Program budget for the academic year 2014-15? (Include any co-curricular funds)

YES **XX**      NO

**If yes**, please briefly describe amount and general uses.

Would be consistent with historical amounts. Approximately \$8000-9000

Fiscal Year 2011-12: WLDT were allocated \$12,000 and spent \$5,300.

Fiscal Year 2012-13: WLDT were allocated \$7,500 and spent \$6,500.

Fiscal Year 2013-14: This year the dean has recommended \$8,000;

2. Are there any new financial needs for the academic year 2014-15?

(Examples of new financial need might include: new funding needed for upcoming events, new initiatives, changes in curriculum that require new training beyond what staff development can provide, request for release time for something new, etc.)

YES  NO

If yes, briefly describe. Provide any data which support these needs.

Support for staff development of Technician IV at a WELD-ED Seminar  
Support to start a space that supports advanced manufacturing activities

### I. Other information pertinent to the program.

In the space below, discuss any other information which is pertinent to the program. Examples include

- Internal or external impacts on program
- (e.g., mandates from state, curriculum changes in one program that impact another, loss of resources due to budget cuts, changes in college mission, goals, etc.)
- Other internal or external data (*data not discussed above*)

Welding touches every aspect of our modern life from the shoes we wear to the food we eat. The Welder or Welding Technician is concerned with all of the activities related to the manufacturing, production, performance, and maintenance of welded products. Interest is primarily in the manufactured or fabricated product, including process selection, power sources, base and filler materials, manufacturing methods, hands-on skills training, inspection, quality control, performance evaluation, and equipment service. The broad range of welded products with which welders and welding technicians deal includes structures, such as bridges, buildings, utility equipment, wind turbines, and communication towers; pressure vessels and heat exchangers, such as nuclear systems, boilers, solar thermal systems, oil and natural gas exploration, chemical processing equipment, storage vessels, and transmission and distribution piping; transportation vehicles for water, land, air, and space travel; and production and processing machines of all types. The role of the energy industries and the importance of welding to their success is an increasing area of emphasis. The welding field is an ever-changing, continually evolving field that is dynamic in the location, environment, material, equipment, process, and skills that welder and welding technician work requires. Innovation is key to the future success of welding and welding education.

The needs of the welding industry are great and varied. The skills required to be successful are great and varied as well. One of the reasons welding has always been a lucrative career path to follow is that people with the proper skill set are hard to find. Perfected and earned over time, those employers that require the best skills, pay well for the work. Furthermore, the median age of the current welding professional is above 55. The American Welding Society and Weld-Ed, an NSF funded national welding education

organization predict a shortage of 200,000 skilled welders by the end of 2019, most through retirements as well as changing skills and technology in the workplace. A copy of their executive summary from their report is attached to this document. In the report, the San Francisco region shows one of the largest increases and needs for skilled welders in the nation. Recent bay area events show the importance of welding in our everyday lives, from the new Bay Bridge to the explosion in San Bruno, welding is part of our modern daily lives, for without metal, everything would need to be built from wood or stone based products. Without it, some of mankind's greatest challenges would or could not be met. Welding has noble roots, intertwined throughout society's fabric.

The welding department students, faculty and staff interact with a wide array of groups on and off campus to enrich the lives of welders, the local community, and a diverse range of other groups that are stakeholders or beneficiaries of efforts in and around the LPC welding program.

The welding department has built, repaired, designed and fabricated equipment and training aids for many other departments on campus. We have built tooling, fixtures, and repaired automobiles in Automotive. We have fabricated, repaired and helped Horticulture on many occasions. We built racks to hold equipment in the CSI Van for the Administration of Justice group. We have built training aids, repaired parts, and have worked on the fire truck for Fire Science. We built a base for the new telescope in the white dome on the hill for the folks in Astronomy. We have repaired and built sports equipment for the Physical Education department. We supplied acetylene gas and regulators to the Chemistry department when they installed their new gas analyzer. We built, repaired and welded part for Viticulture. We built artwork that can be seen all over campus . We have helped build parts for Theater sets and shows. We have built seven custom awards presented at the annual Speech Department LPC Forensics Competition for the last five years. And last, but by no means least, the welding instructor is responsible for the concept, design and fabrication of LPC's most coveted monthly award, "WHAT'S RIGHT AT LPC!". There are countless other tasks we do for sad faces that show up our welding lab door, holding their broken family keepsake, their favorite lamp or teapot, that special something someone gave them, or the part the don't have cash for and can't find on Craigslist. While we wish we had the same success rate as our student learning outcomes, often we cannot weld together the broken heart or save the pot metal part that gravitates to the welding lab door.

Both faculty and staff are active members of the American Welding Society, specifically the San Francisco Section. The instructor has been a member for more than 20 years and attends monthly technical meetings with students on a regular basis. Every year, the department offers every student the chance to become a student member of the society for \$10. The normal cost is \$15, and the difference is picked up by LPC Welding Alumni. To date more than 100 students have become AWS members through LPC. Our welding lab and school were recently visited by the President of the American Welding Society during a recent visit to SF from the east coast. This was quite an honor since we were one of the

few schools he visited this year on his journeys around the country

The instructor is an active member of the External Advisory Board, Materials Engineering Department, Cal Poly San Luis Obispo. Membership in this group connects the education we deliver with that of CSU level engineering course work. It also acts as a catalyst for work we do in our department. For example, the project based learning modules implemented, as well as the service learning work we do in welding in many of our classes is a direct link to what is going on at one of the top engineering schools in the state and nation. Connectivity with top notch external groups like this, drives innovation, creativity, and relevance to many of our course activities and outcomes. A former LPC welding/engineering international student from Thailand has graduated from Materials Engineering at Cal Poly SLO. Proof that the education delivered by LPC programs preps students from all walks of life to succeed in whatever they dream possible. Others like him are in the pipe headed for advanced degrees in welding and materials engineering.

The welding department actively recruits women to help them succeed in career fields dominated by men. Welding fits that demographic well. The purpose of the outreach has been to increase recruitment and retention of women into welding as a future career pathway. As has been a tradition, the male is the dominant welding student enrolled in the program, ranging between 87% and 99% during the period. While men make up the majority of students, women are becoming an increasing force in the program and the industry. These results can be attributed to the success of the CalWomenTech, NSF funded program that LPC welding participated in during past years. Further work in the area recruitment and retention should yield greater results. The department has also participated in outreach to women at local high schools, county library events, LPC Expo, HS Parent/Student Night, Shifting Gears, as well as many other community events.

The welding instructor has participated as a member of the Tri-Valley Educational Collaborative (TEC) educators and administrators group.

In an effort to keep our on campus art community connected to the outside arts education efforts, the instructor is a member of the Alameda County Arts Education Committee, a subgroup of the Alameda County Arts Commission. That group helps develop policy and direction for the Arts IS Education program efforts sponsored by the Alameda County Office of Education - Alliance for Arts Learning Leadership. Last year the instructor helped demonstrate metal artwork at one of the five featured Arts IS Education events within Alameda County. This also served as a great outreach event for women in welding as it was held at the County Library in Castro Valley.

Recently, the instructor was part of an Exterior Art Selection Selection Panel for the new REACH Ashland Youth Center in the urban unincorporated area of the county bordered by Hayward, San Leandro and Castro Valley. The youth center is a project of the Alameda County Redevelopment Agency and Community Development Agency. The Center is intended to be a sparkle of hope in an area with modern urban issues. Located not far

from the Bay Fair Mall and BART station, the hope is that the center will be a magnet for goodness in the youth community. As part of that panel, a discussion has begun on how to incorporate hands-on trades courses for youth at the center since it opened earlier this year. The hope is that basic trade skills and safety habits learned at the center by the youth will make them interested in the trades, pave a pathway to college, as well as make them more qualified than other youth to find entry level work. The welding instructors ideas and concepts were received positively by the Youth Center's Director, and some form of linkage is beginning to gel.

The welding department has been closely linked to the campus sustainability group. The welding program is the epitome of what all other departments should strive to be in the area of sustainability. 100% percent of all student welding materials are recyclable and have been since the first day the doors opened thirty years ago, All the steel, stainless steel, aluminum, brass, copper, magnesium, and titanium we touch and weld on has well established streams for recycling and reuse.

### III. SUMMARY

#### A. Summarize objectives accomplished since the Program Review Update (2012)

*(The 2012 Academic Program Review Updates can be found on the Grapevine*

<http://grapevine.laspositascollege.edu/programreview/ipr2010-11.php>

*(Click on your discipline name.) Your brief discussion may include objectives accomplished since the 2010 program review, even if not discussed in the Update.)*

Objectives accomplished include:

Upgrading welding equipment

Tungsten preparation hardware

Pipe fitting equipment

Pipe beveling equipment

Welding hand tools

Welding power tools

Welding Code books

Most of these were accomplished through instructional equipment requests

#### B Summarize objectives not accomplished since the program review update (2012) and why not.

*(Your brief discussion may include objectives not accomplished since the 2010 program review, even if not discussed in the Update.)*

Welding Yard Cover

Virtual reality welding training equipment

Welding Power tools

These were the biggest ticket items, the college has gone through some lean years, and the department has been fiscally prudent with regards to overall college resources and

have not pushed forward with these because of the tough economic climate of recent years.

**C. What are the objectives for the academic year 2014-15?**

*(Summarize briefly the objectives you plan to accomplish or begin in 2014-15. You will describe your plan to implement/achieve these objectives in the Program Effectiveness Plan in Part IV.)*

Revising Welding Degree and Certificate requirements and courses to more closely align with the WELD-ED National set of Student Learning Outcomes.

Continued roll-out and FULL implementation of the SENSE Welding Program for industry recognized Entry Level Certificates issued by the American Welding Society (AWS)

Becoming an American Welding Society Accredited Testing Facility (ATF) to increase internal department fund raising opportunities. Supports interaction with local industries and community partnerships.

Formation of a SkillsUSA chapter so that students can compete in regional, state and national welding skills competitions.

Virtual reality welding training equipment. Studies have shown students that train on this type of equipment prior to the actual real welding equipment, learn quicker and use less resources than traditional methods of welding skills training.

Distance Education courses for the current 61A, 61B, 62A and 62B face-to-face lecture series classes.

Increase utilization of the interior space within the welding outdoor yard. Transition from storage to usage.

Create partnerships with local companies that support welding education and employment pathways

Strengthen our connections to welding programs at local high schools in our region

“Evening with Industry” event to connect advisory board members with students enrolled with the welding program looking for employment and educational direction

Get LENS laser welder operational, and pursue laser welding in general.

Advanced Manufacturing Lab Space

**D. For all needs identified in Part II, summarize how these needs will affect student learning/achievement and impact the program.**

*(This brief summary should capture the effects on students and the program if the needs are met or unmet.)*

The needs listed in section II will provide a better environment for learning by providing industry relevant training and experience to students leaving our program and pursuing careers in welding and advanced manufacturing. Incremental improvements are the norm, continuous improvement is a way of life in welding. We constantly strive to be better and the items identified will greatly assist.

Without the the needs listed in section II, we will continue to do the best we can using the college assets provided. In the near term the effects may not become evident, but the program will slowly degrade over time losing its significance and relevance in our ever increasing material world. Local and regional employers cannot already fill the needs of skilled hands, any impact to our program just sends ripples out into the local economy.

**Continue to the next page to complete the form.**

Name of Program	Division	Author(s)
Welding Technology WLDT	STEMPS	Scott A Miner

#### IV. PROGRAM EFFECTIVENESS PLAN

**Instructions:** In the table below, indicate how you plan to measure the effectiveness of each objective summarized in Part III and the resources needed.

**Suggested: 0-5 Objectives** (focus on a few)

Rank	Priority 1=essential 2=important 3=nice to have	Objective	SLO's/SAO's linked to objective	College goal(s) linked to objective ‡	How will effectiveness be measured?	Category*	Resources needed	Committee
1	1	Revising Welding Degree and Certificate requirements and courses to more closely align with the WELD-ED National set of Student Learning Outcomes.	ALL		The amount of revision accomplished	Human	Time, Patience Persistence Administrative Support	Curriculum
2	1	Create partnerships with local companies that support welding education and employment pathways Strengthen our connections to	Industry Standard Certification Tests		The number of partner companies or schools aligned	Human	Administrative support and matching funds when grants materialize	Welding Advisory Board  Welding Regional Advisory Board

Name of Program	Division	Author(s)
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		welding programs at local high schools in our region						
<b>3</b>	<b>1</b>	Continued roll-out and FULL implementation of the SENSE Welding Program for industry recognized Entry Level Certificates issued by the American Welding Society (AWS)	ALL		Number of students active in American Welding Online SENSE Entry Level Welder Program	Human Technological	Tim Administrative Support e	Welding Advisory Board
<b>4</b>	<b>2</b>	Becoming an American Welding Society Accredited Testing Facility (ATF) to increase internal department fund raising opportunities. Supports interaction with local	ALL		If we have attained ATF status through AWS	Human Technological Financial	Time \$5000 Administrative Support	Welding Advisory Board

Name of Program	Division	Author(s)
Welding Technology WLDT	STEMPS	Scott A Miner

		industries and community partnerships.						
5	2	Advanced Manufacturing Lab Space	Future SLO's that link to advanced manufacturing		Amount of space and equipment dedicated to Advanced manufacturing	Technological Facilities Human Financial	Space Time Partners Administrative Support	Facilities Welding Advisory Board

\*human, technological, facilities/supplies, financial, other

‡When College Goals become available, this column will be activated.